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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/073,003	02/12/2002	Hsien-Kuei Liao	MR2349-794	5114
4586	7590	10/06/2003	EXAMINER	
ROSENBERG, KLEIN & LEE 3458 ELLICOTT CENTER DRIVE-SUITE 101 ELLICOTT CITY, MD 21043			JACKSON, CORNELIUS H	
			ART UNIT	PAPER NUMBER
			2828	

DATE MAILED: 10/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Applicati n No.

10/073,003

Applicant(s)

LIAO ET AL.

Examiner

Cornelius H. Jackson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.


- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 June 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 10-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 10-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

  
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**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Acknowledgment*

1. Acknowledgment is made that applicant's Amendment, filed on 19 June 2003, has been entered. Upon entrance of the Amendment, claims 1-9 were cancelled and claims 10-18 were added. Claims 10-18 are now pending in the current application.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 10-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over da Silva et al. (Silva) [US Patent 6,347,099]. Regarding claim 10, Silva teaches a power-equalizing multi-channel fiber laser array **Fig. 1** comprising a pumping laser source **4** for generating a primary pumping laser beam; a variable ratio optical splitter **6** for dividing said pumping laser beam into a plurality of secondary pumping laser beams; a plurality of wave division multiplexers, each said wave division multiplexer receiving a respective one of said secondary pumping laser beams and generating a pump signal; a plurality of erbium-doped optical fibers, each said erbium-doped optical fiber being sandwiched

between a fiber grating and a reflector **8/12** to form a resonance cavity, each said resonance cavity being defined by a set of cavity parameters, said cavity parameters being selected such that power output of each said resonance cavity is equal with respect to one another, whereby each said resonance cavity receives a respective pump signal and generates a single-channel laser beam forming a plurality of laser beams defining a multi-channel laser beam, **see col. 2, line 66-col. 3, line 61**. Silva teaches the claimed invention except that said erbium-doped optical fiber being sandwiched between a pair of fiber gratings instead of a fiber grating and a reflector, Silva shows that a reflector (instead of another fiber grating) is an equivalent structure known in the art. Therefore, because these two reflective elements were art-recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to substitute said reflector for said fiber grating, **see col. 3, lines 20-36**.

Regarding claims 11-13, Silva teaches selective reflectance of the gratings, **see col. 3, lines 4-13**, it would have been an obvious matter of design choice to any one of the cavity's parameters, since applicant has not disclosed that altering the length of, or concentration of erbium in, the fiber solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with selecting the reflectance of the gratings.

Regarding claim 16, Silva teaches optical attenuators, **see col. 4, lines 27-32**.

Regarding claims 14-15 and 17-18, it has been held "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the

optimum or workable ranges by routine experimentation." *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

4. Claims 10-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koch et al. (Koch) [US Patent 6,041,070]. Regarding claim 10, Koch teaches a power-equalizing multi-channel fiber laser array **Figs. 5A-7B** comprising a pumping laser source **60** for generating a primary pumping laser beam; a variable ratio optical splitter **62** for dividing said pumping laser beam into a plurality of secondary pumping laser beams; a wave division multiplexer **26**, said wave division multiplexer **26** receiving one of said secondary pumping laser beams and generating a pump signal; a plurality of erbium-doped optical fibers, each said erbium-doped optical fiber being sandwiched between a pair of fiber gratings **64/66** to form a resonance cavity, each said resonance cavity being defined by a set of cavity parameters, said cavity parameters being selected such that power output of each said resonance cavity is equal with respect to one another, whereby each said resonance cavity receives a respective pump signal and generates a single-channel laser beam forming a plurality of laser beams defining a multi-channel laser beam, **see col. 12, line 5-col. 16, line 17**. Koch teaches the claimed invention except for a plurality of wave division multiplexers. It would have been obvious to one having ordinary skill in the art at the time the invention was made, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

Regarding claims 11-13, Koch teaches selective reflectance of the gratings, **see col. 3, lines 4-13**, it would have been an obvious matter of design choice to any one of

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the cavity's parameters, since applicant has not disclosed that altering the length of, or concentration of erbium in, the fiber solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with selecting the reflectance of the gratings.

Regarding claim 16, Koch teaches optical attenuators **50**.

Regarding claims 14-15 and 17-18, Koch teaches the stated pumping wavelengths, **see col. 8, lines 17-26, col. 8, lines 61-65 and col. 14, lines 39-52**.

### ***Response to Arguments***

5. Applicant's arguments with respect to claims 1-9 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cornelius H. Jackson whose telephone number is (703) 306-5981. The examiner can normally be reached on 8:00 - 5:00, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (703) 308-3098. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

  
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